

OVERVIEW OF THE UCSD CAPITAL PROCESS: CAPITAL PROJECT DEVELOPMENT

The Office of Resource Management and Planning manages the capital process at UCSD, primarily through two key departments: Campus Planning and Facilities Design & Construction. This process provides a mechanism to plan, design, construct, and ultimately occupy or use capital projects necessary to pursue the mission of the Campus. Such projects generally entail new construction or renovation of facilities and infrastructure, acquisition of capital equipment, life and safety code improvements, seismic safety, and ADA access. The framework to guide capital improvement projects in general is provided through two key long-term planning documents: the 1989 Revised UCSD Long Range Development Plan (Long Range Development Plan) and the UCSD Master Plan. (For information regarding these documents, refer to UCSD Physical Planning's Web site at <http://physicalplanning.ucsd.edu/>)

Sustainability, a growing interest of the UC community, is an important component of capital project design, construction, and operating practices that focuses on conservation of natural resources. Please refer to Appendix A - *Sustainability* for further information concerning this subject, including the definition of sustainability and the proposed Green Buildings and Clean Energy Standards.

The following overview briefly explains the two major components of the capital process: the capital improvement program (capital resource planning) and capital project development (individual projects moving from concept to occupancy).

I. State and Non-State Capital Improvement Programs

STATE PROGRAM

The State Capital Improvement Program, also known as the State CIP, entails an annual process to identify a "rolling" five-year capital program. The funding is typically made available through California voter-approved bond elections; that is, if the voters approve a bond measure, the State sells General Obligation bonds and pays the debt service through General Fund allocations (tax collections). The Campus works closely with the Office of the President in all aspects of the State program, including the types of projects eligible for the funding, the amount of the five-year funding allocation, and the cost and schedule of the projects. The focus of the State program is on instruction and research, including closely related support activities, infrastructure, and utilities. On the Campus, the Chancellor has established a broadly represented campus committee that is responsible for identifying the space and capital needs of the campus, discussing and reviewing specific projects that could meet those needs, and recommending a prioritized list of projects for inclusion in the State CIP. That committee is the Capital Outlay and

Space Advisory Committee (COSAC). Appendix B - *Process Schedule of the State Capital Improvement Program*, outlines the various steps involved in the State process.

NON-STATE PROGRAM

The Non-State Capital Improvement Program complements the State program as it covers facility needs such as housing, parking, recreation, administrative services, hospitals, and other non-academic needs. Because of the wider array of projects and fund sources, the Non-State program is larger and growing more quickly than the State program. Non-State projects are driven many times by targets of opportunity created by rapidly evolving funding availability or programmatic requirements. COSAC does not prioritize these projects; the needs and funding emanate from the pertinent campus areas. For example, new student housing is pursued by Business Affairs and funded by student housing fees. Funding for Non-State projects includes gifts, campus reserves, and financing that is retired with various campus funds including facilities and administrative cost recovery (also known as indirect cost recovery from research contracts and grants) and various revenues and fees.

The approval process for these projects is varied and depends on the type of funding and total cost of the project. For example, some projects can be approved at the departmental level, others by the Chancellor, and some need to go before the full Board of Regents. A concise summary of these approval thresholds can be found in Appendix C - *Project Approval Thresholds for Non-State Capital Projects*.

II. Capital Project Development

Below is a chronological listing of the six major phases involved in developing a major capital improvement project, with each phase broken down into detailed steps. It should be noted that not all projects entail all of the steps or follow the exact sequence depicted below.

- Phase I: Initial Planning
- Phase II: Preliminary Plans ("P")
- Phase III: Working Drawings ("W")
- Phase IV: Construction ("C")
- Phase V: Equipment ("E")
- Phase VI: Post-Occupancy

PHASE I: INITIAL PLANNING

NEEDS AND FEASIBILITY ASSESSMENT

The development of capital projects is driven by the needs of the Campus. Through needs assessment -- the first step in the development of capital projects -- the feasibility of a capital project can be determined. In most cases, this step is initiated at the Vice Chancellorial level by or on behalf of the prospective users.

During this initial stage, the project is defined in broad terms and its framework is established through use of elementary guidelines such as:

- Project justification (programmatic requirements, space requirements, etc.)
- Project classification (offices, classrooms, laboratories, infrastructure, etc.)
- Project occupants/users (students, faculty, staff, community, etc.)
- Project location (La Jolla Campus, Hillcrest Medical Campus, Muir College, etc.)

Once the needs assessment is completed and the framework is in place, each Vice Chancellorial area recommends viable projects for inclusion into the proposed State Program by responding to an annual capital “call letter” issued by the chair of COSAC. If the project becomes a Campus priority, the project advances through the capital project development process where it evolves from its rudimentary beginnings into a fully developed program (i.e., one which entails a well-defined scope of work, justification, project schedule, capital improvement budget, funding plan, and environmental documentation). Note: Non-State funded projects advance when the program is developed without regard to an annual “call letter.”

COST ESTIMATES

In connection with the needs assessment phase, a preliminary cost estimate for a capital project is prepared by Facilities Design & Construction's Director of Project Management with input, as required, from both UC and non-UC entities involved in the project. At this stage, the estimate is approximate as it is based on a conceptual description of the project. As the project's programmatic requirements are more fully realized through the preparation of the Detailed Project Program (DPP), a more defined construction cost estimate is developed. Upon preparation of the Project Planning Guide (PPG), which is informed by the DPP, a project cost estimate is developed involving both construction costs and soft costs, i.e., indirect costs such as design professional fees, inspection fees, etc. The Capital Improvement Budget (CIB), is a formal document which expresses the project cost estimate. As the project moves to construction, the CIB may be revised, if warranted, to reflect updated cost estimates. For further information regarding the cost factors associated with building at UCSD and the various stages involved in determining the cost and schedule of capital projects, please refer to Exhibit D - *UCSD Building Cost Factors* and Exhibit E - *Four Stages That Determine the Cost and Schedule of Capital Projects at UCSD*.

FUNDING, PLANNING, AND ANALYSIS

Once the needs assessment and preliminary cost estimate are known, Capital Planning conducts a funding analysis for the Non-State funded capital projects. The purpose of this analysis is to identify appropriate funding sources and determine the financial integrity of the funding sources and appropriate funding schedules. In addition to the costs normally associated with construction projects, ancillary costs such as interest during construction, interest post construction, surface parking displacement costs, and administrative gift fees are identified.

SITE EVALUATION

Site evaluation is undertaken and a site is selected as early in the process as possible because the choice of site has programmatic, cost, and schedule implications. Programmatic and related facilities information is provided to Physical Planning by various Campus sources, including Capital Planning and Facilities Design & Construction. Physical Planning reviews appropriate sites within the context and guidelines of the Long Range Development Plan, the UCSD Master Plan, and applicable neighborhood plans. Physical Planning presents its site evaluation to the Building Advisory Committee (BAC) for review and comment. Physical Planning then presents the site evaluation to the Campus/Community Planning Committee (C/CPC), along with the BAC's comments and preferred site choice. C/CPC recommends a specific site to the Chancellor for her approval.

Site evaluations are presented to C/CPC generally on two occasions, initially for introduction and discussion and subsequently for action. Criteria typically considered by C/CPC include consistency with the applicable Campus plans and guidelines, compatibility with surrounding land uses, vehicular and pedestrian accessibility, expansion opportunity, displacement impacts, availability of utility infrastructure, and site environmental constraints.

Two official subcommittees of C/CPC are the Marine Sciences Physical Planning Committee (MSPPC) and the Park Committee. MSPPC reports and/or makes recommendations concerning issues affecting the Scripps Institution of Oceanography (SIO) Campus to C/CPC. Likewise, the Park Committee serves the same function with respect to Campus actions that may affect the UCSD Park.

In addition to the above information, Physical Planning is responsible for preparing and processing all environmental documentation required to secure site approval and to monitor environmental mitigation which may be required as conditions of approval.

BUILDING ADVISORY COMMITTEE APPOINTMENT

A Building Advisory Committee (BAC) is convened for most projects with budgets exceeding \$400,000. The committee works closely with the selected design

professionals to ensure that a capital project meets the goals and objectives of the Campus and users. The membership, which is appointed by the Chancellor via a charge letter, will vary according to the type of project, but is intended to have a broad representative body of the Campus. Further information regarding BACs, including the responsibilities of the committee chair, is referenced in Appendix F - *Building Advisory Committees*.

DESIGN PROFESSIONAL SCREENING AND SELECTION PROCESS

Capital projects requiring the services of key design professionals adhere to the Design Professional Screening and Selection process coordinated by Facilities Design & Construction and directed by the Campus Architect. When such projects are estimated to exceed \$1 million or consultation fees exceed \$100,000, policy requires that the selection process include public advertising to invite design firms to submit documents supporting their qualifications for a particular project. Design professionals are approved by the Chancellor for projects of \$1 million or less and by the Office of the President for projects exceeding \$1 million.

The Design Professional Screening and Selection process entails two committees: a screening committee that narrows the pool (typically resulting in three to five preferred candidates) and the selection committee that interviews such firms. Following the interview process, the selection committee recommends the leading candidate to the Chancellor or the Office of the President (Senior Vice President - Business and Finance) for appointment. A list of alternates is also provided at this time in the event negotiations with the leading candidate fall through, the appointment is not approved, etc.

The Chair of the Building Advisory Committee and the Directors of Physical Planning, Facilities Design & Construction Project Management, and Capital Planning are members of both the screening and selection committee, with the Campus Architect directing both processes. The balance of the membership for each committee is derived from the Building Advisory Committee.

DETAILED PROJECT PROGRAM (DPP)

A Detailed Project Program (DPP) or architectural program is typically developed for the purpose of guiding the project's design professional in the design process. In addition, the DPP also serves as the foundation for the subsequent Project Planning Guide. The DPP defines building organization and function for both assignable (e.g., offices and labs) and nonassignable (e.g., elevators and hallways) areas. Normally, a design professional takes the principal role in producing the DPP, working closely with the Building Advisory Committee. Among the topics addressed in the DPP are: the overall assignable square feet (asf) and gross square feet (gsf) of the project; the definition of each room by size, function, and design features; the relationship of the building to its surroundings; site planning; building form and massing; building design criteria; key

building components and systems; access and circulation requirements; energy conservation; and construction cost estimates.

ENVIRONMENTAL DOCUMENTATION

Physical Planning conducts an environmental impact review and prepares an Environmental Impact Classification form (EIC) in accordance with California Environmental Quality Act (CEQA) guidelines for each capital project. If a project falls into a classification deemed not to have a significant impact on the environment, the project is classified as “exempt” and a “Notice of Exemption” is prepared which concludes the review.

For those occasions when a project is not classified as exempt, Physical Planning conducts an initial impact study to determine if the project has significant impact on the environment or entails an issue that requires further study. Depending on the findings of this study, the project can result in the preparation of either a “Notice of Determination of Final EIR” or a “Notice of Determination of Negative Declaration.” (For further information, refer to Physical Planning’s Web site at <http://physicalplanning.ucsd.edu/>).

For projects within the purview of the California Coastal Commission, Governmental and Community Relations is responsible for obtaining required Coastal Commission development permits.

FUNDING AGREEMENT

A Funding Agreement is required for most Non-State capital projects. Such documentation, which is prepared by Capital Planning, outlines the budgetary and financial components for a capital project and ensures that financial responsibilities associated with such components, including potential funding shortfalls, are clear. To effect such commitments, a Funding Agreement is signed by senior management on behalf of the appropriate Campus entities. The document is typically signed prior to seeking project approval but not later than bid advertisement.

PROJECT PLANNING GUIDE (PPG)

The purpose of the Project Planning Guide (PPG) is to present a clear and concise justification for a capital project. The PPG includes a project description, justification, scope of work, space program, Environmental Impact Classification, site, budget and funding sources, and schedule.

The PPG is required by the Office of the President for all State-funded projects and those Non-State projects over \$5 million. Capital Planning takes the principal role in

producing and submitting the PPG, working closely with the Building Advisory Committee, Facilities Design & Construction, and Physical Planning. The PPG serves as a document of understanding or “contract” between the Campus and the Office of the President. For State-funded projects, the State may also be considered a party to the agreement with the expectation that the project scope, budget, and schedule outlined in the PPG be implemented without significant changes.

Projects requiring State-funded movable equipment require an additional approval document, the Equipment List. This list includes a complete equipment inventory for each room, including equipment to be purchased by State funding and existing equipment to be relocated to a new building.

PROJECT APPROVAL

Capital Planning takes the lead in obtaining Project Approval for all UCSD capital projects. Project Approval is defined as the formal approval necessary to allow the Campus to proceed with the preliminary planning phase (“P” phase) and move forward to design approval. Depending on the total project cost and the funding sources, the approval is granted by The Regents, the President with concurrence from appropriate Regental chairs, the President solely, the Vice President for Budget, or the Chancellor.

The approval process follows one of two tracks: State or Non-State. Generally, if any State funding is required for the project, then it follows the State process. Non-State funding, such as gifts, campus funds, and external financing, is a faster process with less oversight by entities outside of the University. More detailed information regarding the State and Non-State processes is provided in the initial paragraphs of this document.

No matter what funding sources or project cost is involved, Project Approval grants the campus the authority to prepare a design that can be supported by the budget. Accordingly, if the scope of work changes significantly or the budget requires augmentation, subsequent review and approval may be required.

EXTERNAL FINANCING

On occasion, capital projects are fully or partially funded through external financing. Both interest during construction (IDC) and project costs can be funded by this means. While external financing can be obtained for a period up to 30 years, the length of financing depends upon the accounting useful life of the project and, therefore, can be for a shorter term. Financing approval is granted by either the President or The Regents depending on the dollar amount of the external financing. (Project costs and IDC receive separate approvals.) External financing is obtained through the coordinated efforts of the Campus and the Treasurer's Office in the Office of the President.

Four external financing mechanisms available to the University are:

- Commercial paper, an interim funding mechanism for projects that will eventually be financed by bonds;
- Bank loans;
- Private placement of funds provided by institutional investors; and,
- Revenue bonds issued by the University consisting of pool bonds, bonds for specialized research (Garamendi Bonds), hospital bonds, and Certificates of Participation (COP) for energy related projects.

Garamendi Bonds

Garamendi financing warrants additional discussion since it differs from other funding mechanisms in that it addresses how debt is repaid rather than how funds are obtained. Established in 1990 through State legislation (Section 15820.21), this mechanism allows for the use of bonds to fund University of California research facilities that benefit the State economy. It is unique in that it allows facilities that house sponsored research activities, other than the normal Instruction and Research, to pay for themselves. Under this mechanism, incremental indirect cost recovery generated by federal contracts and grants made possible as a result of the capital project is used to pay for operations and maintenance of the project and for debt service. It should be noted that each “Garamendi” project is approved individually by the Legislature and Governor through the annual Budget Act or special legislation.

PHASE II: PRELIMINARY PLANS

SCHEMATIC DESIGN AND DESIGN DEVELOPMENT

Preliminary Plans are developed in two phases: schematic design and design development. The schematic design phase involves studies and feasibility analyses of various alternative layouts and systems applicable to the project. Schematic plans are derived from this process. The design development phase reviews the schematic plans, along with the related cost estimate. If the budget for the capital project exceeds \$5 million, a value engineering study (a discipline that uses formalized procedures to identify systems, materials, and methods to best meet functional requirements of the project at a cost that provides the best value) may be required after one or both phases.

During these phases, the design professional, working under the direction of the Project Team (the Facilities Design & Construction Project Manager, the Physical Planner, and the Capital Planner) consults with the Building Advisory Committee. This joint effort ensures that the project addresses the concerns, needs, and interests of the Campus.

DESIGN REVIEW BOARD REVIEW

The Design Review Board (DRB), an advisory board to the Chancellor, is charged with the review of facilities design and major landscape projects to ensure such projects are architecturally appropriate and consistent with the Long Range Development Plan and the UCSD Master Plan. Projects that have significant visual impact on the Campus, regardless of the size of the project, are also reviewed by the DRB.

Typically, major projects are reviewed by the DRB three times before being submitted for design approval. The three reviews by the DRB are: pre-design, concept presentation, and final schematic design. On occasion, additional reviews may be required; specifically, a review of the proposed exterior materials and color or when a project has been previously approved by the DRB but later modified by value engineering or for some other reason. In all cases, however, the DRB review process must be completed prior to submission for Regental design approval.

DESIGN APPROVAL

Design Approval, which includes environmental approval, takes place after completion of preliminary planning ("P" Phase) and prior to the initiation of working drawings ("W" Phase). Authorizations for such approval are subject to the following thresholds: Regents' Committee on Grounds & Buildings (\$10,000,000+); Senior Vice President - Business and Finance (\$5,000,001-\$10,000,000); Chancellor (\$5,000,000 or less). The approval processes for the different authorization thresholds are similar with few exceptions. To provide the reader with a general idea of what is involved in such processes, a description of the Design Approval process, which includes environmental approval, for projects exceeding \$10,000,000 is provided below.

Design Approval - Regents' Committee on Grounds & Buildings

This review process starts with the submission of a Regents' item to the Office of the President (OP) followed by an initial review of design materials. Graphics and environmental documentation are submitted shortly thereafter to OP and then presented by Campus representatives, along with the finalized Regents' item, to a quorum of the Regents' Committee on Grounds & Buildings. All approvals are reported at the next Regents' full board meeting. The time frame for this entire process is approximately two and one-half months.

Further information on the processes and time frames for processing Design Approval is available in Appendix G - *Design Approval Process for Major Capital Improvement Projects* and Appendix H - *Design Review Calendar for 2003-2004*.

PHASE III: WORKING DRAWINGS

CONSTRUCTION DOCUMENTS

Construction documents consist of drawings and specifications that describe the quality, configuration, size, and relationship of all components to be incorporated into the project. Specifications are the written description of the construction materials and processes required to complete the project with the drawings serving as the visual complement.

The documents must be consistent with the project program, the construction budget, and the project schedule. To ensure this objective, the documents are reviewed by numerous internal and external entities, including Facilities Design & Construction, Environment, Health & Safety, Physical Planning, Telecommunications, Real Estate Development, the Building Advisory Committee, the Division of State Architect, the Office of State Fire Marshall, the Office of Statewide Health Planning and Development, and the California Coastal Commission.

The construction documents, which are part of the contract package, serve as a basis for obtaining bids from contractors in the bid/award process.

PHASE IV: CONSTRUCTION

BID/AWARD PROCESS

State law and Regental policy require projects greater than \$100,000 to be publicly advertised for competitive bid. In such cases, Facilities Design & Construction makes project specifications and drawings available to the public with contractors submitting bids for construction work based on the construction documents. Competitively bid contracts must be awarded to the lowest responsible bidder, i.e., the bidder able to satisfactorily perform the work at the lowest cost.

CONSTRUCTION PROCESS

In the majority of new construction projects, the University employs the traditional Design/Bid/Build system of construction delivery. However, other methods of delivery such as Multiple Prime, Construction Manager at Risk and Design/Build are available and may be used when program requirements warrant such use. For further information on the various methods, refer to Exhibit I - *Construction Delivery Methods*.

Regardless of which method is employed, construction of the project proceeds under the scrutiny of the Facilities Design & Construction Project Manager and the Facilities Design & Construction Inspector. The Project Manager and Inspector are charged with the following responsibilities: ensuring the project adheres to the scope of work; monitoring the project budget and schedule; serving as the primary Campus liaison with the clients, contractors, and design professionals; ensuring the project is built according

to applicable building codes and is appropriately inspected; and, issuing paperwork such as the “Notice to Proceed,” change orders, equipment orders, and the “Notice of Substantial Completion.”

In addition to the above and prior to the occupancy of a new building or renovated area, Facilities Design & Construction is responsible for inspecting the project for conformance with the construction documents and specifying work items that must be completed before the project is accepted by the Campus.

PHASE V: EQUIPMENT

EQUIPMENT AND FURNISHINGS

For purposes of capital projects, equipment is categorized into three groups: Group 1 which is referred to as “fixed equipment” and Groups 2 and 3 which are referred to as “movable equipment.” Fixed equipment is built-in or permanently affixed to a building or structure and is funded through the construction phase (“C” phase) of the Capital Improvement Budget.

Movable equipment, including furniture and furnishings, can be thought of as equipment that would fall out if the building or structure was turned upside down. Group 2 equipment is inventoried, has an acquisition value of \$1,500 or more, is free-standing, and has a useful life expectancy of one year or more. Group 3 equipment, on the other hand, is non-inventorial and has an acquisition value of less than \$1,500. Groups 2 and 3 equipment are funded through the equipment phase (“E” phase) of the Capital Improvement Budget.

Depending on the circumstances, State funds for movable equipment may or may not be available to support State-funded projects. The amount of funds designated for moveable equipment for a State-funded project is limited by a formula based on the net new space provided by a project and the department or use occupying it. In addition, funding requests for State projects can include custodial equipment required for start up operations and miscellaneous costs related to equipment procurement.

PHASE VI: POST-OCCUPANCY

POST-OCCUPANCY REVIEW

Following occupancy of a newly constructed or renovated building, a formal evaluation may be conducted to assess the successes and failures of the processes and implementation of planning, design, construction, and the overall functionality and aesthetics of the project. Projects selected for the review are relatively large in scope and budget, significant in their impact on the Campus, and encompass a broad range of project planning, development and management issues. In general, a thorough evaluation

of one such project per year is sufficient, and will generate recommendations appropriate to other projects as well.

The Campus Architect and the Assistant Vice Chancellor for Campus Planning, in consultation with the BAC chair, recommend to the Vice Chancellor of Resource Management and Planning a capital project for review. The Vice Chancellor issues a charge letter to the Review Team stating the goals, objectives, and time frame of the review.

The evaluation commences approximately six months following occupancy of the building, with the selection of a Review Team by the BAC chair, the Campus Architect and the Assistant Vice Chancellor for Campus Planning. Members of the Review Team typically include the BAC chair, BAC members from the user departments, the Project Team (BAC members from Capital Planning, Facilities Design & Construction, and Physical Planning), and a facilitator external to the BAC process for that project. In addition to these members, the Review Team may include other key representatives such as additional users occupying the building other than BAC members, a Design Review Board member, the Executive Architect or other design professionals/consultants, and the general contractor.

Elements of the review:

- Capital Planning distributes an opinion survey to the Review Team and organizes and coordinates the evaluation session.
- The facilitator: 1) helps plan the agenda; 2) guides the meeting discussion; 3) articulates findings and conclusions at the meeting; and, 4) reviews and confirms the summary report as written by Capital Planning.
- Up to a full day is scheduled for the evaluation which includes: 1) a tour of the facility being evaluated; 2) a presentation and discussion of the results of the opinion survey; 3) a thorough and open discussion of project issues; and, 4) a consensus on findings and recommendations.
- The meeting is held in the building under evaluation, if possible.
- The cost of the meeting (for participants external to the Campus, snacks and meals, and room rental, if necessary) is borne by the project plant account.
- Capital Planning drafts a summary report, including action recommendations, and seeks comments from the Review Team.
- Capital Planning prepares the final summary report and distributes the report to the meeting participants, associated Vice Chancellors, and other Campus stakeholders affected by capital processes.

APPENDIX A SUSTAINABILITY

Sustainability refers to the physical development and institutional operating practices that meet the needs of present users without compromising the ability of future generations to meet their own needs, particularly with regard to use and waste of natural resources. Sustainable practices support ecological, human, and economic health and vitality. Sustainability presumes that resources are finite, and should be used conservatively and wisely with a view to long-term priorities and consequences of the ways in which resources are used.

University capital development already incorporates many aspects of these sustainable practices, but is in the process of adopting specific and comprehensive policy actions to:

- Promote principles of energy efficiency and sustainability in the planning, financing, design, construction, renewal, maintenance, operation, space management, facilities utilization, and decommissioning of facilities and infrastructure to the fullest extent possible, consistent with budgetary constraints, attainment of regulatory changes, and programmatic requirements;
- Implement programs to reduce consumption of non-renewable energy by creating a portfolio approach to energy use, including energy efficiency, local renewable power, and green power purchases from the electrical grid, with the intent of minimizing increased use of non-renewable energy for the University's built environment during this next decade of growth; and,
- Provide an annual report to The Regents that examines impacts on energy utilization and building design, and the effects of this policy on capital and operating costs.

More detailed information concerning the approval and implementation of this proposed sustainability policy is provided on the Office of the President's Web site at <http://www.ucop.edu/ucophome/busfin/>. In addition, the Society for College and University Planning's *Planning for Higher Education*, March–May 2003 issue, focuses on sustainability and can be viewed at <http://www.scup.org/phe>.

APPENDIX B
PROCESS SCHEDULE OF THE STATE IMPROVEMENT PROGRAM

October	COSAC* Chair sends “call letter” to Vice Chancellors
December	Vice Chancellorial areas submit proposed capital projects
January	Cost estimates prepared by Facilities Design & Construction
February	Vice Chancellorial areas present capital project proposals to COSAC
March	Draft Project Planning Guides (PPGs) submitted to the Office of the President (OP)
April	OP requests UCSD’s Five-Year Capital Improvement Program (CIP)
May	UCSD’s CIP submitted to OP
June-August	PPGs and CIP finalized with OP
October-December	All campus CIPs submitted to the State after Regental approval; OP and the Department of Finance discuss inclusion of UC CIP in the Governor’s Budget
January	Governor’s Budget released; Legislative Analyst’s Office (LAO) reviews/makes recommendations concerning the Governor’s Budget
February	LAO’s report issued
June	State Budget adopted by Governor and Legislature
July	Campus receives funding allocation for budget year

*COSAC = Capital Outlay Space and Advisory Committee

APPENDIX C
PROJECT APPROVAL THRESHOLDS FOR NON-STATE PROJECTS

PROJECT CLASSIFICATION	PROJECT COST	APPROVAL LEVEL	REQUIRED DOCUMENTATION	
			Documents	Prepared by:
Renovations & Alterations	\$1 - \$35,000	Campus Architect	Renovations & Alterations Form (R&A Form)	User Department works with FD&C or PPS Project Manager. Completed form submitted to Capital Planning for processing.
Minors	\$35,001 - \$400,000	Campus Architect	Renovations & Alterations Form (R&A Form)	Same as above
			Environmental Impact Classification (EIC)	Physical Planning
Mini-Majors	\$400,001 - \$5,000,000	Chancellor (Note: If financing, Presidential approval applies)	Project Summary Form	Capital Planning
			Capital Improvement Budget (CIB)	FD&C
			Project Schedule	FD&C
			Environmental Impact Classification (EIC)	Physical Planning
Administrative	\$5,000,001 - \$10,000,000 (no financing)	Vice President/Budget	<div>Project Planning Guide (PPG) Capital Planning</div> <div>Capital Improvement Budget (CIB) FD&C</div> <div>Project Schedule FD&C</div> <div>Environmental Impact Classification (EIC) Physical Planning</div>	
Presidential	\$5,000,001 - \$10,000,000 (financing)	President		
Action By Concurrence	\$10,000,001 - \$20,000,000	President with concurrence of three chairs: Board of Regents, Grounds & Buildings, and Finance		
Regental	\$20,000,000+	The Board of Regents		

Notes:

Subsequent budget increases or significant scope changes require supplemental approval; such approval varies on the specific circumstances.

If a State project is supplemented with non-State financing, the financing has to be approved via the appropriate non-State approval process.

Design and Environmental Approvals are separate processes under the purview of FD&C and Physical Planning.

APPENDIX D

UCSD BUILDING COST FACTORS

- UCSD buildings generally have mixed uses, such as classrooms, teaching and research labs and offices. The disparate program components create other building system requirements that increase cost. Building cost is directly proportional to the program of the building, to the number and extent of systems and to the complexity of the building.
- When comparing costs of buildings on a per square foot basis, one must be careful to account for costs per GROSS square foot, not assignable or rentable square foot.
- Building costs need to be compared apples to apples. Make sure the comparison is made on the basis of construction cost OR total project cost. Total project cost includes soft costs such as design fees, management fees, contingency, financing, along with other costs such as movable equipment, furniture, etc.
- Inflationary and regional differences must be normalized and indexed when comparing building costs to be able to get an accurate comparison. For instance, UCSD must contend with the most stringent code requirements for seismic resistance.
- Fire and life safety requirements are more stringent. For example, all new buildings utilize fire sprinkler systems, even when the building code may not require them.
- UCSD must construct facilities using prevailing wage rates. The premium for this typically ranges from 5% to 15%, depending on the local construction economy.
- Life-cycle costs are significant planning and design elements. UCSD buildings generally use materials and system components that have higher upfront costs, but are less costly to maintain over time. Buildings are designed to span a minimum of 50 years with some expected to reach 100 years.
- Typically UCSD buildings are designed with a heavier floor-loading requirement so that the buildings can be adaptable and flexible with respect to future occupants and change.
- Interior finishes are harder and more durable. Finish hardware is institutional grade versus commercial grade.
- Extensive functional equipment is required such as lab casework, classroom seating, audio-visual equipment, library shelving, data and telecommunications.
- Heating and ventilating mechanical systems are complex. A central utilities plant is utilized for the distribution of cold and high temperature hot water. This system requires elaborate engineering for the heating and cooling of the building. However, the long-term operational and energy costs are reduced compared to stand alone HVAC systems.
- Tolerances for heating, cooling and humidity control are generally very critical.
- Laboratories have heavy air change requirements and larger electrical loads.
- Campus aesthetic requirements generate more costly exterior materials (for example, stone versus stucco), but life-cycle costs are significantly reduced.

APPENDIX E

FOUR STAGES THAT DETERMINE THE COST AND SCHEDULE OF CAPITAL PROJECTS AT UCSD

Stage 1: Conceptual Cost Estimate and Timeline

Before the Chancellor appoints a Building Advisory Committee (BAC), the physical and financial feasibility of a capital project must be ascertained. To complete this initial analysis, the Vice Chancellor sponsoring the project asks that the VC Resource Management and Planning assign staff to produce site options, an initial cost estimate, and a timeline. At this stage, all parameters of the program are typically not known. Therefore, it is expected that the cost and timeline will change as the project evolves during the relatively long process that moves a project from a general idea to design to construction. It would be unusual where all the facets of a project (program needs, site conditions, utility requirements, construction market, etc.) are known at the concept stage. Therefore, the sponsoring VC should be prepared to budget more for the project than the specific amount indicated in the initial, conceptual cost estimate. If not, scope may need to be pared away as the project becomes more defined. In addition, the initial timeline, which includes a projected occupancy date, should also be interpreted as a rough first-cut, susceptible to “creep” given all the variables associated with planning and building capital projects.

Stage 2: Preliminary Budget Estimate and Schedule

Following confirmation of project feasibility, the Chancellor establishes a BAC and the campus hires an executive architect and subconsultants to complete a Detailed Project Program (DPP) that more completely defines the scope, cost and schedule of the project. As part of this multi-month exercise, the first budget (as distinguished from a cost estimate) and schedule (no longer a timeline) are completed by the architect and confirmed by an external cost estimator. The budget is formally called the Capital Improvement Budget, or CIB, and is signed by the campus architect. Details of the building design are not known at this stage, but the budget attempts to account for all major component costs associated with the project, with some costs indicated as placeholder allocations that will change as the process continues. Note: For State-funded projects, this preliminary budget becomes a “contract” with the Office of the President and the State in the sense that the campus is committing to spending no more than the stated dollar amount and building no less than the stated scope at this point in the process. This sometimes becomes troublesome because, as can be seen below, there are two more stages in the project planning process and an early, premature “lock” has been placed on the key program and cost parameters.

Stage 3: Project Approval Budget and Schedule

Once the executive architect is well into the design phase of the project, a second budget and schedule can be developed (although for State projects, as explained above, the budget and scope have already been locked in and will not change unless the campus is willing to secure supplemental non-State funding for the project). For projects funded with non-State monies, the scope, budget and schedule have been developed sufficiently at this time to allow the campus to request Project Approval from The Regents, President or Chancellor, depending on the cost magnitude of the project. A key part of Project Approval is the demonstration of the financial wherewithal to fund the project. If financial commitments are not secure at this point, Project Approval cannot go forward and the project is delayed.

Stage 4: Bid Proposals

Once the working drawings are completed, the campus seeks bid proposals from contractors vying to build the project. These bids are the first “hard” or real numbers that are associated with the project. Regardless of the time, effort and expertise placed in estimating the cost of a project, it is the lowest responsible bid that ultimately determines the cost of the project. The campus may be able to alter the project cost and scope at the margin by use of additive and deductive program alternates, but putting that aside, the sponsoring Vice Chancellor must be prepared to fund any unexpected cost increases if the bid is to be awarded and construction started.

APPENDIX F

BUILDING ADVISORY COMMITTEES

General Discussion

The purpose of the BAC is to establish a representative body of the campus that works closely with the appointed design professionals to ensure a capital project meets the goals and objectives of the campus and users.

A BAC typically is convened for each capital improvement project greater than \$400,000. Resource Management and Planning initiates and coordinates the BAC process for UCSD. The Chancellor appoints the BAC and informs the BAC of its charge through a letter. Capital Planning drafts the committee appointment and charge letter for final approval by the Chancellor. The BAC membership will vary according to the type of project. The membership typically will include the following:

- A lead user or manager who will serve as the BAC Chair
- A Resource Management and Planning Project Team (Project Team), including at a minimum an FD&C project manager, a Physical Planning representative, and a Capital Planning analyst
- Other facility users
- Two representatives from the Academic Senate (one at-large member and one from the Committee on Campus and Community Environment) appointed by the Senate's Committee on Committees
- Associated Students and Graduate Student Association representatives (for those projects directly serving students)

Throughout the process, consultants from Academic Computing, Physical Plant Services, Telecommunications, and Environment, Health & Safety may be called upon to provide technical assistance and advice to the BAC.

The number and frequency of the BAC meetings through the course of a project will vary according to the circumstances of the project. In general, meetings occur more frequently (about twice per month) through the programming and schematic design phases, wherein basic concepts, justifications, and organizing principles of the project are developed. Early in the process, Physical Planning reviews project site considerations with the BAC. Few meetings are necessary once the project enters the phases of working drawings and construction. The BAC duties end with completion of the project, although a post-occupancy evaluation is scheduled for some projects, approximately six months after completion.

Documents related to the BAC proceedings may include the following: a Detailed Project Program (DPP), a Project Planning Guide (PPG), a Preliminary Plan Package, and a Post-Occupancy Evaluation. In general, the BAC's role in the preparation of such documentation varies on a case by case basis.

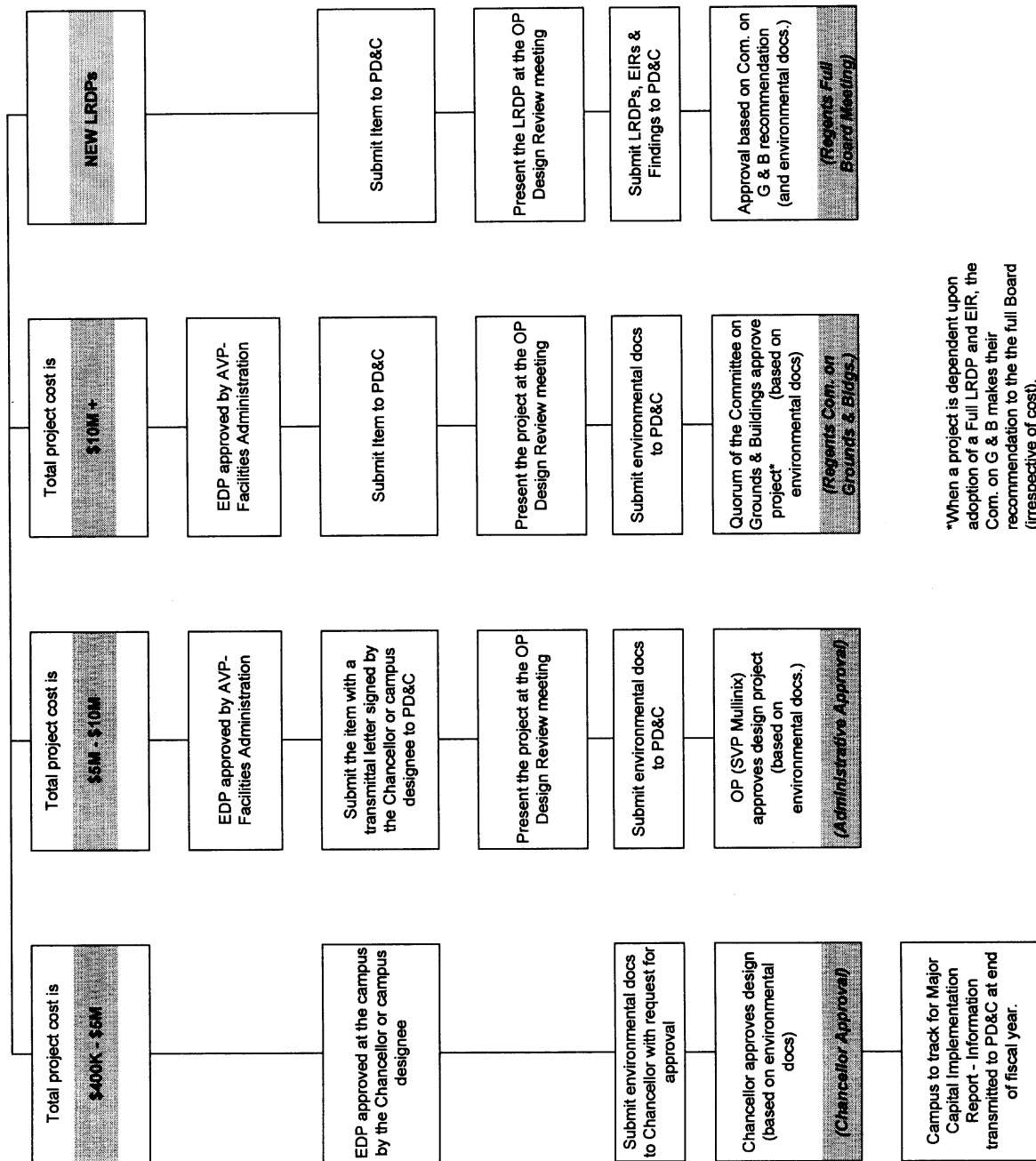
APPENDIX F
BUILDING ADVISORY COMMITTEES
(continued)

BAC Chair Duties

Integral to the success of a BAC and its respective capital project, the BAC Chair must be a fully engaged leader and, along with the Project Team, take ownership of the project. In support of these standards, it is the responsibility of the Project Team to effectively involve the BAC Chair in key facets of the capital process. Such involvement would include not only the duties listed below but discussion of significant issues concerning the overall parameters and direction of the project.

- Meet with the Project Team, prior to the initial BAC meeting, to discuss the project schedule, meeting schedules, and agenda
- Consult with the Capital Planning analyst in defining the membership of the BAC
- Preside at all BAC meetings (or delegate an acting chair when necessary)
- Review and approve meeting agendas and minutes prior to distribution to BAC members, the Project Team, consultants, and the directors of Campus Planning, FD&C, Capital Planning, and Physical Planning
- Sign the Project Planning Guide on behalf of the BAC to acknowledge the BAC's role and responsibility in the capital process
- Consult with the Campus Architect in defining the Design Professional Screening and Selection Committees (also known as the Executive Architect or Executive Engineer Screening and Selection Committees) and serve on the committees
- Represent the BAC at project design reviews by the Design Review Board
- Participate with other BAC members in a post-occupancy evaluation, if scheduled

APPENDIX G DESIGN APPROVAL PROCEESS FOR MAJOR CAPITAL IMPROVEMENT PROJECTS (June 2003)



*When a project is dependent upon adoption of a Full LRDP and EIR, the Com. on G & B makes their recommendation to the the full Board (irrespective of cost).

Notes:
All references to Chancellor approvals include the VP for DANR.

APPENDIX H DESIGN REVIEW CALENDAR FOR 2003-2004

Revised August 2003

DRAFT OF DESIGN ITEM ²	OP DESIGN REVIEW ³	GRAPHICS SUBMITTAL ⁴ AND ENVIRONMENTAL DOC. SUBMITTAL Graphics / Environ. Docs. (60 sets) / (See link below)		REGENTS COMMITTEE ON GROUNDS & BUILDINGS ⁵	REGENTS' FULL BOARD MEETING ⁶
JULY 9	AUG 12	Aug 22	Aug 22	SEPT 4	SEPT 17-18, 2003 (SF - Laurel Hts.)
SEPTEMBER 3	OCT 8	Oct 16	Oct 16	OCT 29	NOV 19-20, 2003 (UCLA.)
NOVEMBER 4	NOV 14	Nov 25	Nov 25	DEC 10	JAN 14-15, 2004 (SF - Laurel Hts.)
JANUARY 15, 2004	FEB 3	Feb 12	Feb 12	FEB 24	MAR 17-18, 2004 (SF - Laurel Hts.)
MARCH 10	APR 1	Apr 8	Apr 8	APR 20	MAY 19-20, 2004 (SF - Laurel Hts.)
MAY 4	MAY 27	June 3	June 3	JUN 15	JULY 14-15, 2004 (SF - Laurel Hts.)

¹ Consult with Design & Construction Services (*B, D, SC, SF, SB, LBNL* 510-987-9641/ *I, LA, M, R, SD, DANR, NRS*, 510-987-9643) throughout Schematic Design Phase as appropriate, for discussion and review of design related issues and schedule.

² Submit draft Item this date, for mutual consultation, editing, and coordination prior to Design Review. Send a copy by E-Mail attachment to Trish Wittmer (patricia.wittmer@ucop.edu). This is now the formal notice of intent to seek design approval. It is no longer necessary to submit a separate copy to Special Assistant Gardner, Coordination and Review at UCOP.

³ This session consists of an informal and thorough discussion of project development, at UCOP, including response to program and budget, design character, and technical resolution. The discussion includes campus design and project management staff, and University Facilities Administration participants. Results of the discussion will be followed with comment from the AVP and Director.

⁴ Graphics illustrating project design are submitted in color Xerox, 8 1/2" x 11" format, usually 4 or 5 images. Sixty (60) sets (collated, stapled and 3-hole punched) are required approximately one week prior to the Regents Committee on Grounds & Buildings meeting. Due dates for graphics and environmental documents are noted in these columns. Environmental docs - got to <http://www.ucop.edu/facil/pd/Submissions.htm>

⁵ The Regents Committee on Grounds & Buildings meeting items will be considered on a Regular agenda for Committee approval and/or action. Presentations are to be given by the campus, the executive architect and other consultants are not permitted to present to the Committee.

⁶ Approvals and/or Actions of the Regents Committee on Grounds & Buildings will be reported at the full board meeting. There are generally no presentations, unless the Committee on Grounds & Buildings has recommended that one be made to the full Board (i.e., design with LRDP amendment).

Note: Letters of request for approval of Design Professional selection may be submitted at any time. **DESIGN PROFESSIONAL APPROVAL MUST BE FINALIZED PRIOR TO THE DRAFT DESIGN ITEM DUE DATE.** Submit a copy of letter of request with selection process and background material to Assistant Director Bade or Assistant Director Wester Design & Construction Services, for review (email a copy to patricia.wittmer@ucop.edu). Submit the original letter of request to Assistant Vice President Michael Bocchicchio. (Refer to DA2134 and August 19, 2002 letter from AVP Bocchicchio).

APPENDIX I

CONSTRUCTION DELIVERY METHODS

In the majority of new construction projects, the University employs the traditional Design/Bid/Build system of construction delivery. However, other methods of delivery such as Multiple Prime, Construction Manager at Risk and Design/Build are available and may be used when program requirements warrant such use. A brief description for each of these is provided below.

Design/Bid/Build

Under this traditional method, an architectural firm is hired and serves as the University's agent. Although the firm may have numerous responsibilities, including the selection of consultants, its primary responsibility is to provide and oversee the design and construction documents for the project. As the design progresses, cost estimates are periodically prepared by the architectural firm and external cost estimators. Once the construction documents and specifications are completely finished, and other requirements of the University have been met, the project is bid and subsequently awarded to the general contractor with the lowest responsible bid.

Multiple Prime

With Multiple Prime, the University divides a project into two or more parts and then enters into a separate contract for each part. The most frequent use of multiple prime contracts is for phased construction, and may be known as "fast-track" construction. Contracts for site development, site excavation, or foundation work are awarded before the contract for the main structural work. A construction manager may be hired as a consultant by the University to assist the project manager.

Construction Manager at Risk

This system of delivery is similar to that of Design/Bid/Build with three key differences. First, a construction manager is hired to manage the construction process, including the selection of subcontractors. Second, through coordination between the architect and construction manager, the design and construction phases can be overlapped thereby expediting the delivery process. Third, the construction manager, who is responsible for quality control, scheduling and the estimate of construction costs, provides a guaranteed maximum price for the project.

Design/Build

Rather than hiring an architect, under Design/Build the University enters into a contract with a single firm with design and building capabilities or a construction entity that employs the architect as a consultant. As with the aforementioned delivery system, a guaranteed maximum price for the entire project is provided, construction management techniques to overlap design and construction phases are utilized, and the overall project delivery is expedited.